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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,371	05/27/2005	Takuya Sugawara	101249.55458US	3837
23911 7590 11/14/2007 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER LEE, CHEUNG	
			ART UNIT 2812	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/509,371

Applicant(s)

SUGAWARA ET AL.

Examiner

Cheung Lee

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) 6,7 and 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-27,29-38,41,42,44,46-49 and 51-53 is/are rejected.
- 7) ☒ Claim(s) 28,39,40,43,50 and 54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5-30-07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicant

1. Applicants' Amendment and Response to the Office Action mailed on March 27, 2007 has been entered and made of record.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on May 30, 2007 was filed after the mailing date of the first action on March 23, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Amendment

3. In view of applicants' amendments and arguments filed on August 27, 2007, the rejections of claims 1-5, 8-39, 41, 46-49 and 51.54 under 35 U.S.C. 103(a) as stated in the Office Action mailed on March 27, 2007 have been withdrawn. Applicants' arguments have been rendered moot in view of the new or modified ground of rejection given below.
4. The indicated allowability of claims 42-44 is withdrawn in view of the newly discovered reference(s) to Koyanagi (US Pub. 2002/0137239). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 4, 16 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Koyanagi (US Pub. 2002/0137239).
6. Referring to figures 1A-1C and related text, Koyanagi discloses [Re claim 1] a process for forming an underlying film, comprising: irradiating the surface of an insulating film 2 disposed on an electronic device substrate 1 with plasma based on a process gas comprising at least an oxygen atom-containing gas (page 4, paragraph 46), to thereby form an underlying film 3 at the interface between the insulating film and the electronic device substrate (page 4, paragraph 46, see fig. 1C).
7. Referring to figures 1A-1C and related text, Koyanagi discloses [Re claim 16] a process for forming an insulating film, comprising: forming a high-dielectric constant insulating film 2 on a substrate 1 (page 4, paragraph 45), generating plasma based on a process gas comprising at least an oxygen atom-containing gas on the high-dielectric constant insulating film (page 4, paragraph 46), and irradiating the surface of the high-dielectric constant insulating film with the plasma to thereby form an oxide film at the interface between the high-dielectric constant insulating film and the substrate (page 4, paragraph 46; see fig. 1C).

8. Koyanagi discloses [Re claim 2] wherein the insulating film is a film comprising a high-dielectric constant material (page 4, paragraph 45).
9. Koyanagi discloses [Re claim 4] wherein the underlying film is an oxide film (page 4, paragraph 46).
10. Koyanagi discloses [Re claim 18] wherein the high-dielectric constant insulating film comprises at least one material selected from the group consisting of Al_2O_3 , ZrO_2 , HfO_2 , Ta_2O_5 , ZrSiO , HfSiO and ZrAlO (page 4, paragraph 45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 3, 5, 8-12, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi, as applied to claims 1 and 16 above, and further in view of Suzuki et al. (US Pat. 6497783; hereinafter "Suzuki").

12. Koyanagi discloses [Re claim 3] a plasma containing oxygen (page 4, paragraph 46), but Koyanagi fails to disclose expressly wherein a plasma containing oxygen radicals.

Suzuki discloses radicals of the plasma from processing gas, which are used to process a wafer (col. 29, lines 40-45).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use oxygen radicals of the plasma, as taught by Suzuki, because it would have been to obtain better oxidation at low temperature, and to form an uniform oxide layer.

13. [Re claims 5 and 17] Koyanagi fails to disclose expressly wherein the plasma is plasma based on microwave via a plane antenna member (RLSA) having a plurality of slots.

Suzuki discloses a planar multi-slot antenna for microwave supply (col. 21, lines 54-60).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a planar antenna for plasma process, as taught by Suzuki, because it would have been to obtain plasma with microwaves radiation of a uniform intensity (Suzuki, col. 21, lines 61-67).

14. [Re claim 8] Koyanagi discloses substantially the claimed limitations, as shown in claim 1, but Koyanagi fails to disclose expressly wherein converting the oxygen atom-containing gas to thereby generate oxygen radicals, and irradiating with the oxygen radicals.

Suzuki discloses radicals of the plasma from processing gas, which are used to process a wafer (col. 29, lines 40-45).

The motivation statement stated in claim 3 also applies.

15. Koyanagi discloses [Re claim 9] wherein the insulating film is a film comprising a high-dielectric constant material (page 4, paragraph 45).

16. Koyanagi discloses [Re claim 10] wherein the insulating film comprises at least one material selected from the group consisting of Al_2O_3 , ZrO_2 , HfO_2 , Ta_2O_5 , ZrSiO , HfSiO and ZrAlO (page 4, paragraph 45).

17. [Re claims 11 and 19] Koyanagi fails to disclose expressly wherein the process gas comprises at least one rare gas selected from the group consisting of Kr, Ar, He and Xe.

Suzuki discloses an additional or carrier gas of Kr, Ar, He, Xe, and etc. (col. 14, lines 30-60).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a rare gas in a plasma process, as taught by Suzuki, because it would have been to control source gas flow rate and oxidation amount without any unwanted reaction.

18. [Re claims 12 and 20] Koyanagi fails to disclose expressly wherein the oxygen atom-containing gas is O₂ gas.

Suzuki discloses O₂ gas as an oxidizing gas (col. 15, lines 25-30).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use O₂ gas as an oxygen atom-containing gas, as taught by Suzuki, because it would have been to obtain better and high quality oxide film in a plasma process.

19. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Suzuki, as applied to claim 8 above, and further in view of Deboer et al. (US Pub. 2001/0036752; hereinafter "Deboer").

20. [Re claim 13] The combined teaching of Koyanagi and Suzuki fails to disclose expressly wherein further comprising annealing the substrate after the formation of the oxide film.

Deboer discloses a post-deposition anneals after formation of a dielectric film using O₂ as a source gas (page 2, paragraph 21). [Re claim 14] The post-deposition anneal is performed in an oxygen ambient (page 2, paragraph 21), and the oxygen source can be provided using O₂ (page 4, paragraph 34).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to perform a post-deposition anneal, as taught by Deboer, because it would have been to eliminate oxygen vacancies reducing leakage current (Deboer, page 2, paragraph 21).

21. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching of Koyanagi, Suzuki and Deboer, as applied to claim 13 above, and further in view of Case Law/Legal Precedent.

22. [Re claim 15] The combined teaching of Koyanagi, Suzuki and Deboer fails to disclose expressly wherein the annealing is conducted at a temperature of 500-1100°C.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to perform annealing process in a certain temperature, because it would have been to obtain a desired oxide film without any oxygen vacancies.

23. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi, as applied to claim 16 above, and further in view of Deboer.

24. [Re claim 21] Koyanagi fails to disclose expressly wherein further comprising annealing the substrate after the formation of the oxide film.

Deboer discloses a post-deposition anneals after formation of a dielectric film using O₂ as a source gas (page 2, paragraph 21). [Re claim 22] The post-deposition anneal is performed in an oxygen ambient (page 2, paragraph 21), and the oxygen source can be provided using O₂ (page 4, paragraph 34).

The motivation statement stated in claim 13 also applies.

25. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching of Koyanagi and Deboer, as applied to claim 21 above, and further in view of Case Law/Legal Precedent.

26. [Re claim 23] The combined teaching of Koyanagi and Deboer fails to disclose expressly wherein the annealing is conducted at a temperature of 500-1100°C.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

The motivation statement stated in claim 15 also applies.

27. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi, as applied to claim 16 above, and further in view of Case Law/Legal Precedent.

28. Koyanagi fails to disclose expressly [Re claim 24] wherein the substrate is at a temperature from room temperature to 500°C; [Re claim 25] wherein the oxide film is formed at a pressure of 3-500 Pa; [Re claim 26] wherein a silicon oxide film having a thickness of 6-12 Å; and [Re claim 27] wherein the plasma has an electron temperature of 0.5-2.0 eV.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use certain parameters to form an insulating film and to have certain thickness of an oxide film, because it would have been to obtain a desired insulating film with desired properties necessary for a device, and to obtain a desired oxide film without any leakage while keeping reduced size of a device.

29. Claims 29 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Ota (US Pat. 6436777).

30. [Re claim 29] Koyanagi discloses substantially the claimed limitations, as shown in claim 16. However, Koyanagi fails to disclose expressly wherein the high dielectric film is a HfSiO film.

Ota discloses a HfSiO₂ film as a high dielectric constant material film (col. 8, line 55-col. 9, line 5).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a HfSiO film, instead of using a HfO₂ film disclosed in Koyanagi, because it would have been to obtain less reactive film than HfO₂ film at the interface with a gate electrode (Ota, col. 8, lines 25-30).

31. [Re claim 42] The combined teaching of Koyanagi and Ota discloses substantially the claimed limitations, as shown in claim 29. And Koyanagi further discloses wherein nitriding the surface of HfSiO film (page 5, paragraph 59).

The motivation statement stated in claim 29 also applies.

32. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Ota, as applied to claim 29 above, and further in view of Suzuki.

33. [Re claim 30] Koyanagi fails to disclose expressly wherein the plasma is plasma based on microwave via a plane antenna member (RLSA) having a plurality of slots.

Suzuki discloses a planar multi-slot antenna for microwave supply (col. 21, lines 54-60).

The motivation statement stated in claims 5 and 17 also applies.

34. [Re claim 31] Koyanagi fails to disclose expressly wherein the oxygen atom-containing gas is O₂ gas and the process gas comprises at least one rare gas selected from the group consisting of Kr, Ar, He and Xe.

Suzuki discloses O₂ gas as an oxidizing gas (col. 15, lines 25-30). And Suzuki also discloses an additional or carrier gas of Kr, Ar, He, Xe, and etc. (col. 14, lines 30-60).

The motivation statements stated in claims 11 and 19, and claims 12 and 20 also apply.

35. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Ota, as applied to claim 29 above, and further in view of Deboer.

36. [Re claim 32] Koyanagi fails to disclose expressly wherein further comprising annealing the substrate after the formation of the oxide film.

Deboer discloses a post-deposition anneals after formation of a dielectric film using O₂ as a source gas (page 2, paragraph 21). [Re claim 33] The post-deposition anneal is performed in an oxygen ambient (page 2, paragraph 21), and the oxygen source can be provided using O₂ (page 4, paragraph 34).

The motivation statement stated in claim 13 also applies.

37. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching of Koyanagi, Ota and Deboer, as applied to claim 32 above, and further in view of Case Law/Legal Precedent.

38. [Re claim 34] The combined teaching of Koyanagi, Ota and Deboer fails to disclose expressly wherein the annealing is conducted at a temperature of 500-1100°C.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

The motivation statement stated in claim 15 also applies.

39. Claims 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Ota, as applied to claim 29 above, and further in view of Case Law/Legal Precedent.

40. Koyanagi fails to disclose expressly [Re claim 35] wherein the substrate is at a temperature from room temperature to 500°C; [Re claim 36] wherein the oxide film is formed at a pressure of 3-500 Pa; [Re claim 37] wherein a silicon oxide film having a thickness of 6-12 Å; and [Re claim 38] wherein the plasma has an electron temperature of 0.5-2.0 eV.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

The motivation statement stated in claims 24-27 also applies.

41. Claims 41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Koyanagi in view of Ota, as applied to claim 29 above, and further in view of Bloom et al. (US Pat. 6228779; hereinafter "Bloom").

42. [Re claims 41 and 44] The combined teaching of Koyanagi and Ota fails to disclose expressly wherein further comprising washing the substrate before the formation of the HfSiO film.

Referring to figures 1-2 and related text, Bloom discloses an initial cleaning process of a silicon substrate before growing any films (col. 3, lines 5-12; see step 40).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to clean a substrate before depositing or growing any films, as taught by Bloom, because it would have been to eliminate any impurities and native oxide layer, which degrade a device performance, before forming an insulating film.

43. Claims 46 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Koyanagi in view of Bloom.

44. [Re claim 46] Koyanagi discloses substantially the claimed limitations, as shown in claim 16. However, Koyanagi fails to disclose expressly wherein forming a gate electrode on the high-dielectric constant gate insulating film.

Referring to figures 1-2 and related text, Bloom discloses a gate electrode 18 on a dielectric layer 20 (see claim 1, step g); see fig. 1).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to form a gate electrode on a dielectric layer, as taught by Bloom, because it would have been to obtain a transistor for an electronic device.

45. Koyanagi discloses [Re claim 53] wherein the high-dielectric constant gate insulating film comprises at least one material selected from the group consisting of Al_2O_3 , ZrO_2 , HfO_2 , Ta_2O_5 , ZrSiO , HfSiO and ZrAlO (page 4, paragraph 45).

46. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Bloom, as applied to claim 46 above, and further in view of Suzuki.

47. [Re claim 47] Koyanagi fails to disclose expressly wherein the plasma is plasma based on microwave via a plane antenna member (RLSA) having a plurality of slots.

Suzuki discloses a planar multi-slot antenna for microwave supply (col. 21, lines 54-60).

The motivation statement stated in claims 5 and 17 also applies.

48. Claims 48-49 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Bloom, as applied to claim 46 above, and further in view of Case Law/Legal Precedent.

49. Koyanagi fails to disclose expressly [Re claim 48] wherein the substrate is at a temperature from room temperature to 500°C; [Re claim 49] wherein the oxide film is formed at a pressure of 3-500 Pa; and [Re claim 52] wherein a silicon oxide film having a thickness of 6-12 Å.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

The motivation statement stated in claims 24-27 also applies.

50. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi in view of Bloom, as applied to claim 46 above, and further in view of Deboer.

51. [Re claim 51] Koyanagi fails to disclose expressly wherein further comprising annealing the surface of the high-dielectric constant gate insulating film after the formation of the oxide film.

Deboer discloses a post-deposition anneals after formation of a dielectric film using O₂ as a source gas (page 2, paragraph 21).

The motivation statement stated in claim 13 also applies.

Allowable Subject Matter

52. Claims 28, 39-40, 43, 50 and 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheung Lee whose telephone number is 571-272-5977. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cheung Lee

November 8, 2007


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER